

**Claims**

1. A nutritional composition comprising a combination of a least one substance selected from the group consisting of specific fats or non-digestible oligosaccharides, associated with at least one microorganism, in an amount efficient to induce a pattern of gut barrier maturation similar to that observed with breast-feeding.
2. A nutritional composition according to claim 1, further improving gut barrier maturation, ensuring an optimal barrier function in infants and/or maintaining gut barrier homeostasis.
3. A composition according to any of preceding claims, wherein said microorganism is Lactobacilli, Bifidobacteria, Streptococci, Pediococci, Enterococci, Lactococci, Oenococci, Staphylococci, Bacteroides, yeasts or mixtures thereof.
4. A composition according to any of preceding claims, wherein the microorganism is *Bifidobacterium* CNCM I-2170, *Bifidobacterium* CNCM I-2168, *Bifidobacterium* CNCM I-2169, *Lactobacillus johnsonii* CNCM I-1225, *Lactobacillus paracasei* CNCM I-2116, *Bifidobacterium lactis* ATCC 27536, *Bifidobacterium longum* BB536 or mixtures thereof.
5. A composition according to any of preceding claims, wherein the non digestible oligosaccharides are selected in the group of fructo-oligosaccharides, galacto-oligosaccharides, sialo-oligosaccharides, xylo-oligosaccharides, inulin, arabic gum, guar gum, resistant starch and/or milk-derived oligosaccharides.
6. A composition according to any of preceding claims, wherein the specific fats are lipids LC-PUFA, such as arachidonic acid (AA) or docosahexanoic acid (DHA), or gangliosides such as those contained in delactosed whey from buffalo milk.

7. A composition according to any of preceding claims, wherein the composition is in the form of a product acceptable to the consumer, such as an ingestible carrier or support, such carriers or supports being a pharmaceutical or a food or pet food composition.
- 5 8. A composition according to any of preceding claims, wherein the composition is in the form of a complete diet, a supplement or a medicament.
9. A composition according to any of preceding claims, wherein the composition is a low birth weight, a starter or a follow-up infant formula or a baby food.
- 10 10. Use of a combination of a least one substance selected from the group consisting of specific fats or non digestible oligosaccharides, associated with a microorganism, for the preparation of a composition intended for maintaining gut barrier homeostasis after physical or psychological stress.
- 15 11. Use of a combination of a least one substance selected from the group consisting of specific fats or non-digestible oligosaccharides, associated with a microorganism, for the preparation of a composition intended for inducing a pattern of gut barrier maturation similar to that observed with breast-feeding.
- 20 12. Use according to claim 10 or 11, further ensuring an optimal barrier function in infants.
13. Use according to claim 10 or 11, further reducing the risk of developing allergy and infection.
- 25 14. The use according to any of preceding claims, wherein the composition is according to any of claims 1 to 9.